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Flightfax®

Online Report of Army Aircraft Mishaps

This edition is the last in a series of four focused on the human errors behind a majority of Army Aviation accidents. Through these four editions, we've explained strategies to combat overconfidence/complacency, inadequate mission planning, aircrew coordination errors, and assumption of low risk missions.

As we finish fiscal year 2011 and thus far in 2012, we are seeing a disturbing trend in training and executing aviation combat missions. Data shows a breakdown of communication in step two of the three-step flight mission approval process, specifically in mission planning and briefing. Publications and messages from the U.S. Combat Readiness and Safety Center may seem to get repetitive in covering this topic. It is also repetitive for us to review accidents where human error is evident. There's certainly room for improvement in the mission briefing process, as evidenced by everything from conducting ad hoc "VOCO" briefs when there could have been time to conduct a face-to-face or over-the-shoulder brief to mission briefing officers. This critical step involves detailed planning and thorough risk assessment from each crewmember and briefing officer before every mission. This cannot happen without communication and personal interaction in ensuring key elements are evaluated, briefed and understood by everyone involved in the mission.

In an effort to develop another tool for commanders to diagnose and mitigate hazards, especially human error hazards, we began an operational field test on February 16 with the 3rd Combat Aviation Brigade that will yield information to help aviation leaders combat the human-error problem. Perhaps our most important venture is the study on the Safety Awareness Program – Aviation. The SAP-A is a proactive hazard reporting program designed to enhance aviation safety through the prevention of accidents and incidents. This identity-protected, self-reporting system is modeled after similar systems currently in place at many airlines under auspices of the Federal Aviation Administration that encourage voluntary reporting of safety issues and events. SAP-A is designed to provide a non-punitive environment for the open reporting of safety concerns and information that might be critical to identifying precursors to accidents. The submitter may either observe or experience a safety concern. The goal of SAP-A is to prevent and predict mishaps by addressing those unintentional errors, hazardous situations/events, and high-risk activities not identified or correctable through traditional safety reporting sources. The test will continue through the third quarter of this year, with follow-on development after a thorough review of the test results.

We've addressed the "low-hanging fruit" risks. With diligence and teamwork, we can significantly reduce risk induced by human error.

Until next month, fly safe!

LTC Christopher Prather USACR/SC Aviation Director
email: christopher.prather@us.army.mil

Are Your Assumptions Realistic?

Dr. Patricia LeDuc, Human Factors Director, USACR/SC

If you have been reading Flightfax over the past few months, you know we have been looking at human error failures in aviation accidents. Three of the top four human errors (overconfidence or complacency, aircrew coordination failures, and inadequate mission planning) have already been discussed. In this article, I want to discuss the last of the top four: the assumption of low risk missions for aviators and expectancy for aviation maintenance crews.

Just look up the words assumption and expectancy on the web and you will see they are listed as synonyms. In addition, both define something taken for granted; a supposition, an opinion or a belief accepted as true, but without sufficient evidence or proof. OK, so how does this relate to you? Well, in the case of aviation maintenance folks, you are most at risk to make this type of error during routine maintenance procedures or standard inspections. You do these tasks all the time and you rarely – or never – encounter unusual problems. Since nothing is ever there (cracks, dents, holes), you begin to approach these tasks with the expectancy that nothing out of the ordinary will be there this time either. When this starts to happen, chances are you will eventually miss a major problem because your brain is expecting things to be just like they were every other time you performed the task. Don't rush through the procedures or inspections and use that checklist. Don't let your brain hit that expectancy mode.

Aviators, just because I started with the maintenance folks, don't think you are exempt from this issue. How does this expectancy creep into your world? You begin to assume missions are low risk without examining all the factors. For example, take a typical pair of aviators who are in the middle of doing a risk assessment; they mark everything low risk. Weather meets minimums, power calculations are within limits (even though just barely), and since everything will go smoothly, they will be there and back before weather deteriorates or they exceed crew rest limits. In case you didn't notice, those aviators made quite a few assumptions about the mission, any of which could be wrong. What happens if nothing goes right? Factors like extended flight hours or degrading environmental conditions might become very real problems and could change the mission's risk level from low to medium or high.

Yes, I know, it can be a hassle to get higher level approval for missions if you mark any of those things on the risk assessment M or H, but you also need to be realistic. The purpose of doing a risk assessment is to incorporate those possible scenarios into your mission plan just in case everything *does not* go perfectly.

In research, you have to do a very similar process. You have to plan for everything imaginable. There has to be established procedures for things like simulator egress with a power failure, tornado alerts, medical emergencies, and exercise and food preparation with sleep-deprived volunteers. You name it, we have to consider it, and

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we have to have a plan to deal with it. Believe it or not, obtaining approval for a high-risk flight is much easier than approval for high-risk research. It could take two or three years to get approval to conduct a high-risk project (sometimes longer). These projects are typically reviewed at three different levels locally, and at least two at higher HQs. Why so many layers of review? Same reason missions deemed medium- or high-risk require higher-level review: SAFETY. It is for the safety of the pilots, safety of the crewmembers, and safety of the people on the ground.

While I am not suggesting you take two years to get mission approval or go through five levels of review, I am suggesting that you reasonably examine the overall risk of the entire mission. Don't assess each risk as if it existed in isolation with no possible impact on or interaction with the other factors. You often hear what happens when you "assume" something. Unfortunately, the outcome from assuming during risk assessment can be much more than a humiliating event.

--Dr. LeDuc can be contacted at the United States Army Combat Readiness/Safety Center, (334) 255-2233.

Manned Aircraft Class A – C Mishap Table

	Month	FY 11 Class A Mishaps	FY 11 Class B Mishaps	FY 11 Class C Mishaps	FY 11 Army Fatalities		FY 12 Class A Mishaps	FY 12 Class B Mishaps	FY 12 Class C Mishaps	FY 12 Army Fatalities
1st Qtr	October	0	1	3			2	1	4	1
	November	0	2	14			1	1	9	0
	December	2	1	4	4		2	2	4	4
2nd Qtr	January	0	0	8			2	0	9	0
	February	0	2	2			2	1	1	0
	March	2	1	5						
3rd Qtr	April	2	1	11						
	May	2	2	2	1					
	June	3	1	3	2					
4th Qtr	July	2	2	9	2					
	August	2	2	9	2					
	September	0	1	5	0					
	Total for Year	15	16	75	11	Year to Date	9	5	27	5

As of 21 Feb 12

Why should aviation leaders "Enforce the Standard?"

COL Dave Fee
Directorate of Evaluation and Standardization
U.S. Army Aviation Center of Excellence
Fort Rucker, AL

General Robert W. Cone, the commanding general of U.S. Army Training and Doctrine Command, recently briefed the Aviation Senior Leader's Conference about the importance of enforcing standards. He discussed the word "standard" in much detail. He asked all the senior leaders present to consider what standards the Army needs. "Why do young leaders want senior officers to enforce standards?" So why are standards so damn important?

From the first day a Soldier enters Army Aviation, we begin to establish a standard. Haircuts, uniforms, a salute, the Army Physical Fitness Test and the rest are defined, demonstrated, trained and evaluated. We even define our best Soldiers with terms like "setting the standard" or "exceeding the standard." We define a standard as a rule or measure, established by authority, for the measurement of quality or value. Our aircrew training manuals define a standard as a "degree of proficiency to which a task must be accomplished." Even our heritage defines our flag carried into battle as a standard. To this very day, many command sergeants major (CSM) and first sergeants (1SG) choose the unit's best Soldiers to be the standard-bearers.

In no place could following the standard be more important than Army Aviation. The ability of Army Aviation to support the ground force commander, to evacuate the wounded, to find, close with, and destroy the enemy is without peer. The cost of our equipment, the time and effort to train our aircrews and the price to replace either one imposes a great responsibility. Army Aviation leaders must enforce an exceptionally high standard.

So how do we maintain this standard? The diagram on the next page details a simple process. We define the standard and we train aircrews how to accomplish the task, drill or mission to that standard. We evaluate the aircrew's performance and allow them to accomplish the mission.

The first step is "setting the standard." Army Aviation regulations and publications from DA level to Combat Aviation Brigade (CAB) standing operating procedures define unit and individual aircrew member programs, requirements and standards. Each aviation command is designed to ensure the standard is defined, disseminated, followed and trained. From the U.S. Army Aviation Center of Excellence commander's Directorate of Evaluation and Standardization (DES) team through CAB standardization teams, brigade commanders, company commanders and standardization pilots (SP) — the standards are set.

Training can begin once we've defined the standards. The Commander's Aircrew

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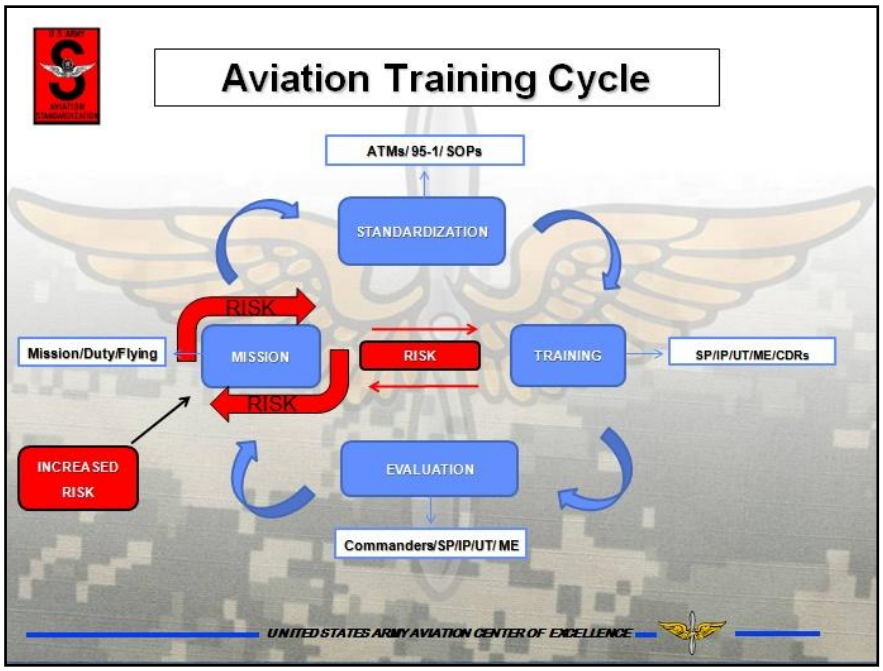

Training Program for Individual, Crew and Collective Training is a great place to start. Led by the commander and CSM and executed by the SP, ME, SI, SO, IP, MTP, PC, FI, aircrew training begins. Well-planned and executed training measured against a clear, defined and obtainable standard assures units are combat ready.

Leaders should evaluate training whenever they lead, participate and observe a training event. Leaders who fail to evaluate, discuss and direct training are not fulfilling their obligation. Worthwhile leaders constantly evaluate, assess events and provide feedback; coaching, mentoring and executing training to ensure aircrew members are mission ready. Some evaluations need to compare individuals, crews and units against the set standard. These “check rides,” no-notices, annual proficiency and readiness tests, instrument rides, helicopter gunnery skills tests, battle drills, and combat training center rotations demonstrate our mission readiness. The Commander’s Aircrew Training Program standardizes training and evaluation to ensure combat readiness.

Once the individual, crew and unit have met the standard, then they are ready to accomplish the mission. Each day, Army aircrews worldwide accomplish their missions to a high standard without the supervision of commanders or SPs. Our young, focused, hard-charging aircrews supporting ground forces, evacuating the wounded, rapidly moving across the battle space to find, close with and destroy the enemy is why Army Aviation has dominated the battlefields of Iraq and Afghanistan.

We begin to have problems when steps are forgotten, lost, or overcome by events. For example, when SPs don’t fly with IPs, check records and enforce standards, or when commanders either stop flying or only fly with SPs, and don’t assess or evaluate training, these standards will soon be forgotten. Aircrews are so focused on the mission that if not checked, they may drift away from the standard. Leaders like the CSM and 1SG must fly with crews as an SI or crew chief. Commanders must constantly assess, evaluate and adjust. Commanders should be PCs, with SPs and CSMs serving as their advisors to enforce the standard. If the standard goes unchecked, Soldiers will eventually lose sight of the right way to do things. Not enforcing standards or ensuring proper training, and missing evaluations increases the risks.

So why should aviation leaders “Enforce the Standard?” It is our duty and responsibility as aviation leaders to enforce standards, thereby guiding units to success. We must be the ones to carry that standard.

--COL Dave Fee, Director DES, may be contacted at (334) 255-2603, DSN 558.

Mishap Review: OH-58D Mid-air Collision

Two OH-58D aircraft, conducting individual NVG RL progression training in their local training area, collided in mid-air resulting in two destroyed aircraft and four fatalities.

History of flight

The accident aircraft were two OH-58Ds from different companies. Aircraft 1 was scheduled to conduct NVG RL2 mission training and a local area orientation. Aircraft 2 was conducting NVG RL3 training. The crews completed aircraft preparation, crew briefs and run-ups with no noted problems. Both aircraft were up full lighting. Weather was VMC with clear skies, winds at 140/04 knots and unrestricted visibility. Moonrise in the eastern sky was 1850 hours local with 97% illumination.

At approximately 1911 hours, Aircraft 1 departed the home airfield en route to the training area. Aircraft 2 departed at 1912 hours and proceeded to a designated LZ on the western side of the flight training area with arrival at 1928 hours. Both aircraft were in contact with the installation's flight following agency as were several other aircraft operating in the training area. At 1935 hours, Aircraft 1 contacted flight following of its intended flight route to the west to complete its local area orientation. Aircraft 1 was advised by flight following of aircraft in the vicinity to include Aircraft 2 and its western location. Aircraft 1 acknowledged. At 1941 hours, Aircraft 1 reported to flight following its position (2 KM east of the LZ occupied by Aircraft 2) and their intent to exit the training area to the west. Approximately one minute later, while traveling westbound at 90 kts and an altitude of 219' AGL, Aircraft 1 impacted the left rear quadrant of Aircraft 2. Aircraft 2, which was conducting right closed traffic in the LZ, had just completed its crosswind to downwind turn and was heading southwesterly at a speed of 70 kts when impact occurred. Both aircraft received catastrophic damage and resulted in fatal injuries to both crews.

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Crewmember experience

The IP of Aircraft 1, sitting in the right seat, had more than 2500 hours total flight time, with 680 NVG hours and 330 hours as an IP. The PI had 257 hours total time with 36 under NVG. Aircraft 2's IP, occupying the right seat, had over 3300 hours total flight time, 1000 NVG hours and 820 as an IP. The PI had a total of 188 hours flight time with 35 NVG.

Commentary

The accident board determined that the aircraft crews failed to maintain close surveillance of their surrounding airspace and adhere to published altitude guidelines for transitioning and terrain flight aircraft. Factors that contributed to restricting crew visibility, scanning, and airspace awareness included the high illumination and angle of the rising moon, PI inexperience with NVG flights, cultural lighting, and the right turn of Aircraft 2 as it turned to its downwind heading. The board recommended that altitudes associated with transitioning aircraft as outlined in the local guidance be addressed as MSL versus AGL due to the rolling terrain and tall trees on the reservation.

UAS Class A – C Mishap Table

	FY 11 UAS Mishaps					FY 12 UAS Mishaps			
	Class A Mishaps	Class B Mishaps	Class C Mishaps	Total		Class A Mishaps	Class B Mishaps	Class C Mishaps	Total
MQ-1	2		1	3	W/GE				
MQ-5	3		1	4	Hunter	1	1	1	3
RQ-7	1	11	30	42	Shadow		5	6	11
RQ-11					Raven				
RQ-16A			3	3	T- Hawk				
MQ-18A									
SUAV			1	1	SUAV			3	3
Aerostat	6	9		15	Aerostat				
Total Year	12	20	36	68	Year to Date	1	6	10	17

As of 21 Feb 12

Blast From The Past

Articles from the archives of past Flightfax issues

VCSA's Thoughts on Aviation Risk Management and Leadership (reprinted from Flightfax July 2006)

Army Aviation continues to be an integral part of the combined arms team in the Global War on Terrorism. Through almost 5 years of continuous combat operations, our aviators have flown more than 1 million hours in Operations Enduring Freedom and Iraqi Freedom (OEF/OIF). As a result, our crews are reaching combat experience levels unprecedented since the end of Vietnam. However, despite our tremendous achievements, we have lost 123 aircraft since 9/11, with over two-thirds of those losses to preventable accidents. Although this equates to the loss of a combat aviation brigade worth over $2 billion, more importantly, it means we have lost far too many aviators and Soldiers to preventable accidents. The trends in these accidents are clear: insufficient leader involvement in low-risk missions, inadequate pre-mission planning, poor aircrew coordination, and indiscipline. Our Army cannot afford to continue to lose aviation crews, Soldiers, and aviation combat power, and our aviation crews owe our prime customer – the American Soldier – the best aviation support that will complete the mission safely. Therefore, I want each of you to redouble your efforts to ensure your units are following standards, managing risk, and doing the basics right.

Leader Involvement in Low-Risk Missions

As experienced combat crews return from OEF/OIF, there is a tendency to become complacent as their units transition to training and non-combat operations. Commanders must pay special attention to aviation tasks that are assessed as "low risk" and guard against complacency by aircrews and mission planners. Seemingly low-risk missions are needlessly killing our Soldiers and destroying our combat equipment. Home station resources are limited due to reset and preset of aircraft, therefore leaders must do the following:

(1) Skillfully manage your aircrew training programs and maximize the use of our combat mission simulators.

(2) Carefully scrutinize missions and ask tough questions to ensure we are not allowing complacency on low-risk missions or allowing *perceived* low-risk missions (e.g., visual flight rules (VFR) cross-country to become high-risk missions because of changes in operating conditions).

A specific area of concern is single-ship operations, which are most often categorized as low-risk operations. Multi-ship operations – the standard in combat – lower risk by adding experience, maturity, judgment, and command attention to the mission. The more aviators involved in the planning and execution of a mission, the better the preparation and decision making. When briefing single-ship operations, specific involvement by the command and mission brief authority are required to identify all hazards and have thorough, honest dialogue with crews to assess the aircrew's ability to conduct the mission and ensure the appropriate level of pre-mission planning has taken place.

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Pre-mission Planning

In a previous message, I emphasized the importance of the air mission approval process as the mechanism for the chain of command's oversight to ensure proper risk management and optimal use of limited flying hours. When used properly, this process shapes low-risk operations into fully functional training events and ensures detailed pre-mission planning. Currently, it is evident low-risk operations are not getting the appropriate amount of command involvement. Mission briefing authorities have the responsibility to not only ensure proper mission planning and risk assessment requirements are met, but also that the mission meets the intent of the commander and is a proper utilization of limited aircraft hours.

A specific issue of pre-mission planning that needs increased focus is cross-country flights. All too often our crews push VFR flight into deteriorating weather conditions and turn a low-risk mission into a high-risk mission. Army Regulation (AR) 95-1, *Flight Regulations*, requires all Army aircraft that are instrumented for instrument flight rules (IFR) flight and flown by an instrument-rated pilot to operate on IFR flight plans with limited exceptions. Leaders must coach standards and discipline for limited visibility operations so aircrews will conduct hard, realistic training and gain the skills and confidence necessary to conduct operations in all flight regimes. Part of this coaching is supporting the pilot in command's "no go/mission abort" decision when weather en route is found to be insufficient for continued flight under VFR. Once in flight, mission-focused aircrews are hesitant to make decisions to land short of the objective, turn back to the point of origin, divert to alternate airfields, or continue the mission under IFR. Failure to file an IFR flight plan limits options while en route, and the unwillingness to commit to IFR flight exponentially increases the risk of an accident. Units and aircrews need to maintain the skills necessary to successfully accomplish all aviation missions.

In November 2004, our Army lost seven Soldiers to a UH-60 wire strike in marginal weather. The lessons learned from this accident about pre-mission planning and Composite Risk Management are highlighted in a video available through the U.S. Army Combat Readiness Center (USACRC). Due to the sensitive nature of this video, distribution has been closely managed. Due to recent accident trends, I encourage each battalion-level commander to obtain this video from USACRC and use it to train their crews.

Crew Coordination and Indiscipline

A hallmark of our Army is strict discipline and adherence to standards. When we deviate from these standards, we assume unnecessary risk. Recent accident trends indicate aircrews are all too often failing to do the most basic things right. From adhering to the mandated flight envelope, altitude selection, or power management, Army Aviation is experiencing a spike in indiscipline. Professional aviators do

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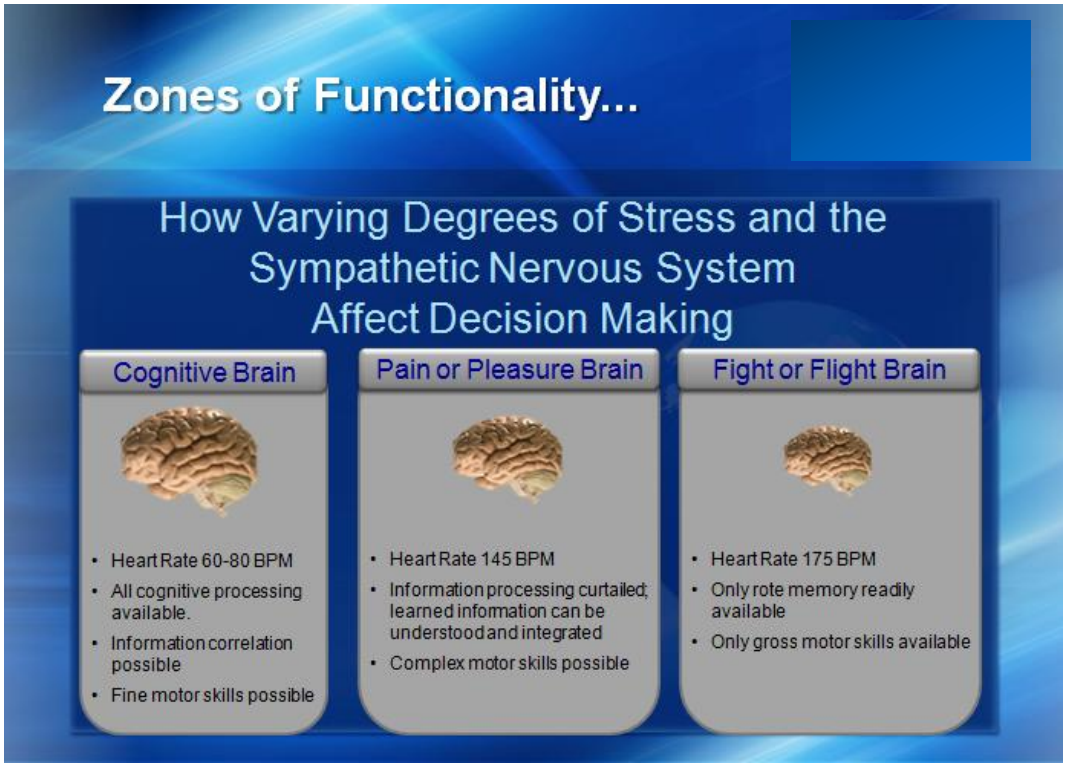
Blast From The Past continued from previous page

100 percent of the basics right 100 percent of the time. As we continue to fight an intelligent enemy with more sophisticated equipment, no amount of technology can replace the need to do the basics right. We need to recognize there is a major difference between disciplined, aggressive combat flying and reckless, foolhardy flying. We as an Army will not tolerate the latter.

Stay focused. Your personal involvement in low-risk missions, pre-mission planning, crew coordination, and discipline will preserve our combat power. You represent the best of the warrior ethos and are a vital part of our nation's success in the war on terror.

- Adapted from GEN Richard A. Cody's message to general officers, assistant division commanders, aviation brigade and battalion commanders on 23 June 2006. GEN Cody, an Army Aviator, became the 31st Vice Chief of Staff on 24 June 2004.

Know your emergency procedures!



- Much of the research in this area comes from WWII where there was a major effort to determine the most effective hand-to-hand combat techniques for people functioning under extreme duress.
- An understanding of how stress impacts decision making is extremely important in improving human performance in aviation.
- I don't think too many people know that "memory items" were designed to allow people functioning in the "fight or flight" area to stop the escalation of the problem without thinking about it. The idea was that if you can react properly using "a rote procedure," your mind will be forced to function which will hopefully return you to the "Pain or Pleasure" functional area where performance is greatly improved.

Selected Aircraft Mishap Briefs

Information based on Preliminary reports of aircraft mishaps reported in January 2012.

Utility helicopters

UH-60 

-L series. During single-wheel landing for exfil of passengers, a local national interpreter was struck in the helmet by a main rotor blade resulting in serious injury. (Class A)

-A Series. Aircraft had a No.1 engine compressor stall with TGT spike followed by engine failure. Aircraft landed without further incident. Post-flight inspection revealed additional damage to a tail rotor blade due to internal engine debris. (Class C)

-A Series. Aircraft experienced No.1 engine TGT and torque exceedance during hovering flight. Aircraft landed without further incident. Post-flight maintenance inspection revealed that the No.1 engine inlet plug had been partially ingested into the No.1 engine. (Class C)

-M series. Aircraft was being taxied to parking when the turret cover of an MRAP parked on the HLZ was blown into the main rotor system. One MRB was damaged. (Class C)

MH-60 

-L Series. Aircraft FLIR turret shroud was damaged during landing in brown-out conditions. (Class C)

Attack helicopters

AH-64D 

-No.1 engine nacelle was observed in the open position and damaged during aircraft refuel. Crew reported it was checked during pre-flight and in the closed position. Nacelle required replacement. (Class C)

Observation helicopters

OH-58D 

- Aircraft contacted a tree with the tail rotor during NOE training. Post-flight and subsequent maintenance inspections revealed that one tail rotor blade required replacement due to damage. (Class C)

Cargo helicopters

CH-47 

-F series. During environmental training, aircraft contacted sloping terrain and rolled on its side. (Class A)

-D series. Aircraft contacted a sod berm during landing to an LZ under NVGs. Aircraft was repositioned for exfil and damage was identified on post-flight. (Class C)

MH-47G

-Rotor wash resulted in damage to a parked aircraft as the aircraft was on departure from the runway. (Class C)

Fixed wing aircraft

C-12 

-K Series. Crew experienced engine restart anomalies. Post-flight inspection revealed failure of the No.2 engine bearing. Engine required replacement as a result of the associated damage. (Class C)

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Selected Aircraft Mishap Briefs

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Unmanned Aircraft Systems

RQ-7B 

-Engine failed in flight. Chute deployed. UA recovered with damage. (Class C)

-Engine failed during RTB. Operator was able to fly/guide it within 200 meters of the base and deployed the recovery chute. (Class C)

-UA experienced uncommanded airspeed and altitude fluctuations followed by IMU failure and loss of control. Recovery chute was deployed. (Class B)

MQ-5B 

- Nose gear collapsed when it hit the arresting gear during landing. UA swerved and came to rest off the runway with damage. (Class A)

- UA landed during currency evaluation and sustained damage to the landing gear and forward propeller. (Class C)

Aerostat 

- Aerostat blimp was struck by lightning and crashed outside the FOB. (Class B)

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https://safety.army.mil/atf/

If you have comments, input, or contributions to Flightfax, feel free to contact the Aviation Directorate, U.S. Army Combat Readiness/Safety Center at com (334) 255-3530; DSN 558

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